

**CASE REPORT****OPEN ACCESS****Toxoplasma Encephalitis: AIDS Defining Illness****Javed Ali, Uzma Anwar, Nida Wali Khan, Bushra Jamil*, Maria Tahir****Resident Physician-Medicine Dept. Khyber Teaching Hospital, * Resident - Department of Medicine, Hayatabad Medical Complex**

Toxoplasma gondii is known to infect a considerable proportion of the world's population, the parasite is able to disseminate within the host body and overcomes the blood brain barrier and then reside in the brain. In immunocompetent patients, infection runs without any overt clinical features however upon immunosuppression the latent tissue cyst can reactivate and it can have a deadly outcome. Here we report a case of 30-year-old male presenting in acute confusion state who was later diagnosed as Toxoplasma encephalitis.

Keywords: Fever; Neurologic Deficit; Toxoplasma Gondii; Encephalitis

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INTRODUCTION

Toxoplasma is a protozoan parasite that can infect humans if they consume undercooked meat (lamb, pork) which contains the cyst of the parasite. It can also occur through ingestion of cysts in fruits, vegetable and water contaminated with cat feces. (1) After ingestion of the Toxoplasma Gondii oocysts, the parasite invades the intestinal wall and disseminates throughout the body. Then

they encyst in any type of nucleated cell and can lie dormant within the tissue for the life of the host.

When the HIV positive patient develops AIDS, CD4 count less than 100 cells/ micro-L, toxoplasma seropositive and not received appropriate prophylaxis or antiretroviral therapy then in these patients T. Gondii can reactivate, with CNS being the most common site involved. Extracerebral disease can also occur, commonly affecting the lungs and eyes. (2)

CASE REPORT

30-year-old male known cannabis addict with no previous comorbid presented to us with one month history of fever, headache, weight loss, 3 days history of altered mentation and sudden onset right sided weakness. He was diagnosed with HIV 1 year back and was started on antiretroviral therapy. The patient had poor compliance to the treatment and eventually stopped the medication.

On examination, he was drowsy, not oriented in time place and person. GCS – E4V2M5 (11/15). Neck stiffness negative. On the right side, power was 0/5 in both upper and lower limbs with increased tone, no clonus, exaggerated deep tendon reflexes and upgoing plantar. Gait could not be assessed. Rest of the systemic examination was unremarkable.

Blood tests revealed TLC of 4000, lymphocytes 8% with CD4 count estimate of 160 cells. ESR was 145mm in 1st hour, CRP was 2.72 mg/L. CT brain was reported to have bilateral multifocal hypodensities with vasogenic edema. Lumbar puncture was done after exclusion of papilledema which showed pleocytosis neutrophils 9% lymphocytes 91%, protein was 67mg/dl, glucose was 39mg/dl. CSF ZN stain for AFB and Gram Stain was negative.

MRI Brain showed multiple rings enhancing lesions in brain parenchyma involving cerebrum, brainstem and posterior fossa. **Figure. 1.** Toxoplasma serology was sent, IgM was 1.44 against positive of 0.6 and IgG was 17.83 IU/ml against positive rate of 3 IU/ml.

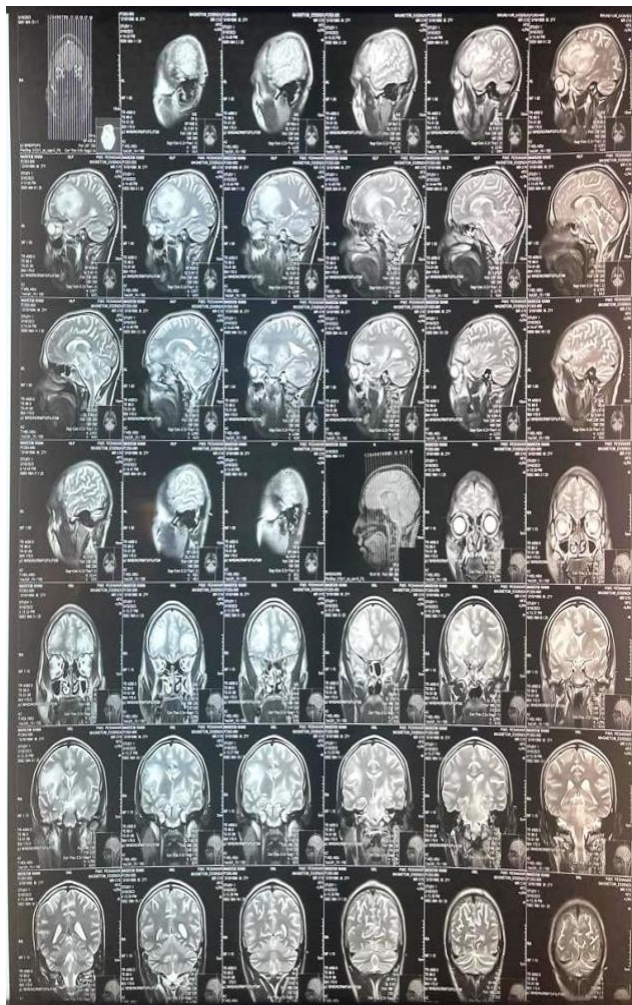


Fig. 1: MRI Brain

DISCUSSION

Toxoplasma encephalitis does not occur usually if CD4 count is greater than 200 cells/microL. If cell count is less than 50 cells/micro-L, the risk is greatest. (3) However, it is a treatable cause of CNS disease caused by AIDS (4)

In AIDS patients toxoplasma encephalitis can be diagnosed presumptively if the cell count is less than 100 cells/ micro-L, not receiving appropriate prophylaxis for T. Gondii infection (5) and has all of the following

- A compatible clinical syndrome: fever, neurologic deficit, seizures, headache
- Serology: positive for T. Gondii IgG antibodies
- Radiology: MRI showing multiple ring-enhancing lesions

If the above criteria are present, there is 90% probability of toxoplasma encephalitis. (6)

Treatment of toxoplasmosis in patients with HIV comprises of antimicrobials against T. Gondii plus ART for immune recovery. Adjuvant corticosteroids are given to prevent neuro complications. In our case, we restarted the patient on ART (Tenofovir, Lamivudine, Dolutegravir) and antimicrobial (trimethoprim-sulfamethoxazole). As an adjuvant therapy, dexamethasone was given. Response to therapy is checked by daily neurological examination followed by neuroimaging. (7) we did daily neurological assessment of the patient and he showed significant improvement. He was advised neuroimaging on follow-up visit 2 weeks later.

CONCLUSION

Since AIDS is no longer a rare disease in Pakistan, therefore T. Gondii infection should be suspected in any AIDS patient presenting with CNS manifestations. The infection can be confirmed by toxoplasma serology (IgG). In this way, appropriate treatment can be timely initiated to avoid CNS sequelae.

REFERENCES

1. Elsheikha HM, Marra CM, Zhu XQ. Epidemiology, Pathophysiology, Diagnosis, and Management of Cerebral Toxoplasmosis. *Clin Microbiol Rev.* 2020 Nov 25;34(1):e00115-19. doi: 10.1128/CMR.00115-19. PMID: 33239310; PMCID: PMC7690944.
3. Rabaud C, May T, Amiel C, Katlama C, Leport C, Ambroise-Thomas P, Canton P. Extracerebral toxoplasmosis in patients infected with HIV. A French National Survey. *Medicine (Baltimore).* 1994 Nov;73(6):306-14. doi: 10.1097/00005792-199411000-00004. PMID: 7984082.
4. Van Delden C, Hirschel B. Folinic acid supplements to pyrimethamine-sulfadiazine for *Toxoplasma* encephalitis are associated with better outcome. *J Infect Dis.* May 1996;173(5):1294-1295. Available at <http://www.ncbi.nlm.nih.gov/pubmed/8627092>.
5. Benjamin J. Luft, Jack S. Remington, Toxoplasmic Encephalitis in AIDS, *Clinical Infectious Diseases*, Volume 15, Issue 2, August 1992, Pages 211–222
6. Luft BJ, Hafner R, Korzun AH, Leport C, Antoniskis D, Bosler EM, Bourland DD, Uttamchandani R, Fuhrer J, Jacobson J, Morlat P. Toxoplasmic encephalitis in patients with the acquired immunodeficiency syndrome. *New England Journal of Medicine.* 1993 Sep 30;329(14):995-1000.
7. Luft BJ, Remington JS. Toxoplasmic encephalitis in AIDS. *Clin Infect Dis.* 1992 Aug;15(2):211-22. doi: 10.1093/clinids/15.2.211. PMID: 1520757.